

claims

1. Highly oxidation resistant component (1),
5 having a substrate (4),
a protective layer (17),
which consists of
an intermediate MCrAlY layer zone (16) on or near the
substrate (4),
10 wherein M is at least one element out of the group Co,
Fe, Ni,
and an outer MCrAlY layer zone (19)
which has the structure of the phase γ -Ni and has a
content of Aluminum of up to 6.5wt%, and
15 wherein the outer MCrAlY layer zone (19) is onto the
intermediate MCrAlY layer zone (16),
and wherein the outer MCrAlY zone (19) consists of pure
 γ -Ni phase.
- 20 2. Highly oxidation resistant component according to claim
1,
wherein the protective layer (17) consists of two
separated layers (16, 19).
- 25 3. Highly oxidation resistant component according to claim
1,
with a continuously graded concentration of the
composition of the intermediate and outer zone (16, 19)
inside the protective layer (17).
- 30 4. Highly oxidation resistant component according to claim
1,
wherein the outer layer zone (19) is thinner than the
intermediate layer (16) on or near the substrate (4).

5. Highly oxidation resistant component according to claim 1,
5 wherein the intermediate MCrAlY-layer zone (16) has the composition (in wt%): 10% - 50% Co, 10% - 40% Cr, 6% - 15% Al, 0,02% - 0,5% Y, Ni base.
6. Highly oxidation resistant component according to claim 1,
10 wherein the intermediate MCrAlY-layer (16) or the outer layer zone (19) contains at least one further element such as (in wt%): 0,1% - 2% Si, 0,2% - 8% Ta or 0,2% - 5% Re.
7. Highly oxidation resistant component according to claim 1,
15 wherein the Yttrium of MCrAlY of the intermediate MCrAlY zone (16) or the outer zone (19) is added and/or at least partly replaced by at least one element out of the group
20 Hf, Zr, La, Ce and/or other elements of the Lanthanide group.
8. Highly oxidation resistant component according to claim 1,
25 wherein the outer layer (19) zone has the composition (in wt%): 15 - 40% Cr, 5 - 80% Co, 3 - 6.5% Al and Ni base.
9. Highly oxidation resistant component according to claim 1,
30 wherein the outer layer (19) zone has the composition (in wt%): 20 - 30% Cr, 10 - 30% Co, 5 - 6% Al and Ni base.
10. Highly oxidation resistant component according to claim 1,
35 wherein the MCrAlY layer zone (16, 19) contains Ti

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(Titanium) and/or Sc (Scandium).

11. Highly oxidation resistant component according to claim
1,

5 wherein on the outer layer zone (19) a thermal barrier
coating (13) is formed.

12. Highly oxidation resistant component according to claim 8
10 or 9,
wherein the rhenium content (Re) is between 0.2 and 2wt%.

13. Highly oxidation resistant component according to claim
11,
15 wherein a heat treatment prior to applying a thermal
barrier coating is carried out
in an atmosphere with a low oxygen partial pressure,
especially at 10^{-7} and 10^{-15} bar.

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